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The STUDENT believes that the University should invite and make earnest endeavor to secure, in the near future, an annual meeting of the State Grange at the University. It wishes now to call the attention of those in authority to this very feasible means of bringing the University, especially its School of Agriculture, into closer touch with this great farmer's organization, to the certain benefit of the cause of agricultural education—the one great object, both of the Grange and our School of Agriculture.

This issue contains a portrait and sketch of Doctor N. S. Townshend. It is the second one of the series of biographical sketches of the members of the Agricultural Committee. It is hoped that these sketches will prove not only of interest, but also in a certain measure, an incentive to all those who read them.

We desire to call the attention of our readers to the Special Course in Dairying at the Ohio State University advertised in another part of this journal.

The appliances will be of the most modern styles and in great variety. The instructors, as heretofore noted in this paper, are especially fitted for this work and the students will be of a high order.

There can be no question that this is an opportunity that no one can afford to miss who wishes to meet successfully the competition of his fellow dairyman, the butterine man or the filled cheese operator.

The regular annual meeting of the Ohio State Horticultural Society will be held in the city of Columbus, December 12, 13 and 14. This furnishes a rare opportunity for the students in the School of Agriculture to hear some valuable papers, listen to instructive discussions, and to become acquainted with some of the most prominent horticulturists of the state. The value of these meetings can scarcely be overrated, and every one interested in horticulture should attend if possible.

The annual address of Hon. J. H. Brigham, Worthy Master of the National Grange, delivered at the annual meeting held recently at Springfield, Ill., is a strong and vigorous exposition of the present status of many questions affecting our farmers, as farmers, and as citizens. In it he blazes the way for the more effective study of many problems of prime importance. We wish all farmers would read it, study it, act on it. With just pride in Brother Brigham, as from Ohio, as well as from the United States, we may be excused for calling attention to this emanation from him as bearing internal evidence of the fact that he is the greatest living exponent of true grange doctrine, and also of the best policy for American farmers to pursue as citizens.

The election has come and gone. The verdict of the people has been for the plaintiff. Democracy, with almost unanimous consent, has been displaced by Republicanism. In the assault many of the tried and efficient statesmen have been felled and their places given to untried, inexperienced men. This is an unfortunate occurrence, but cannot be remedied. In such assaults the strong fall with the weak; and in the assailing party as many of the weak survive as the strong. Explanations of this reverse are continually being made. The whole of the matter can be summed up in a few words: That when a triumphant party in power forgets the trust imposed upon it by the people, and its leaders engage in intrigues and corruption, and when the party fails to comprehend the objects for which it was placed in authority, popular distrust will arise, dissatisfaction will give rise to action, and the party having failed in its obligations and pledges, will be superseded by another.

What our country needs is true, patriotic men to direct her destiny. What is needed, is not automatons but men. Let the people exercise self-government by electing honest, able and patriotic men with political views which they can commend; but let the people use their ears for hearing, and their eyes for seeing, and their brains for thinking, and let not the highest effects of a well planned representative system be prevented by ill-directed, unpatriotic and ambitious men. The sooner the people realize this fact, the more conclusive will be the evidence that this is a self-government rather than a suicidal one.

The foot ball game on Thanksgiving day clearly demonstrates the fact that the O. S. U. boys can play foot ball if they want to. The first games of the season were a little discouraging, but the end has been better than the outlook. The beneficial influence of winning a foot ball game is incalculable. It enlivens college spirit; it promotes inter-collegiate acquaintance, and above all gives to a college a reputation which attracts new students. Boys like to attend an institution which leads athletically as well as morally and intellectually. O. S. U. can well be proud of her glorious victory over Kenyon on last Thursday.

The life of Doctor Townshend well reinforces the lesson of an active, long and useful life. The Doctor's efficient services in the army and in congress as well as in the cause of higher agricultural education will never be forgotten. The chief inspiration of his life, expressed on many occasions, has been the acquisition and the transmition of a knowledge of horticultural and agricultural principles and methods. In all of these highly responsible trusts he has been distinguished by his great ability, unblemished honor and spotless integrity, and an enemy to none. With his twenty years' service as professor of agriculture at the Ohio State University, the public is well and most favorable acquainted, and we express more than "perfunctory sentiment when we say that few indeed realize the debt of gratitude those interested in the cause of agricultural education owe to Doctor Townhsend and a few others, who, time and again, during the past twenty-five years, fanned into life, the dying embers of agricultural education." The wish of all is that his days "may be lengthened to the continued enjoyment of the fruits of his useful life."

The past five years have been eventful ones in the history of the University in many ways. Not the least in interest to the public has been the rapid increase in the number of students in attendance. The following table gives the total number of students enrolled in the University, and the number in the School of Agriculture during the past five years, together with the number registered to date during the present school year:

NUMBER OF STUDENTS ENROLLED.

	SCHOOL OF AGRICULTURE.	TOTAL IN UNIVERSITY.	PER CT. AGR'L. STU.
1889-'90	26	425	.061
1890-'91	30	493	.061
1891-'92	40	664	.061
1892-'93	47	776	.061
1893-'94	71	800	.088
1894 to date	75	749	.100

It must be a source of gratification to the friends of agricultural education everywhere, that one-tenth of the students of the University are persuing this branch of study.

The Farmer and Business Depression.

The last two or three years have been exceedingly hard on the farmer. Prices have been low, wheat reaching the lowest point that it has in many years. But, the depression has not been felt alone by the agriculturist. Many were more seriously affected than he. Consider the failures in manufacturing and commercial establishments; consider the laborers out of employment; how much they envy the farmer's secure position. The agriculturist has cause to congratulate himself because he has weathered one of the most severe panics that our nation has experienced, with but few losses.

The prices of three of the great staple products of our country—wheat, wool and cotton—are still very low. It is probable that wheat will not soon again reach an average price equal to that of the preceding decade. The application of better methods to cotton production has permanently reduced its cost. The price of wool in this country depends almost entirely upon legislation, but it is certain that it cannot go much lower. The business situation, as gathered from the commercial journals, is just this: The prices of all agricultural products, for this year—except wheat, wool and cotton—will undoubtedly be as high as the average for recent years; the prices of wheat, wool and cotton will average those of last year, at any rate, and wheat tends to make a slight advance. However, the fall in prices is quite general. Many manufactured articles have been reduced in price, and so what the farmer has lost as a producer he has gained as a consumer.

Agriculture is, proverbially, the slowest industry to adapt itself to changed conditions. The farmers, who are quick to perceive a change, and rapid adapt themselves to it, make money. Those who are quickest to adapt themselves to the conditions make the most money. It is very evident that conditions affecting agriculture have recently changed. Perhaps they are still changing. Now, it behooves all to determine how far-reaching those changes are, and how best to adapt methods to them. Young farmers ought to see in this a great opportunity to make for themselves good reputations among the advanced agriculturists of the day.

The Ohio State Grange

Will meet in annual session at Dayton, December 11, 1894, the meeting continuing three days.

The opportunity should be taken by every member of the order among the agricultural students to attend this meeting.

The Grange is National, and is preeminently the farmer's organization; educational, social, financial and politico-economic.

It has already passed through the trying formative period, and is to-day composed in large part of selected and seasoned timber. It is, on the whole, wisely conservative; nevertheless, showing that vigorous aggressiveness which forces upon the nation the recognition of the principles for which it contends.

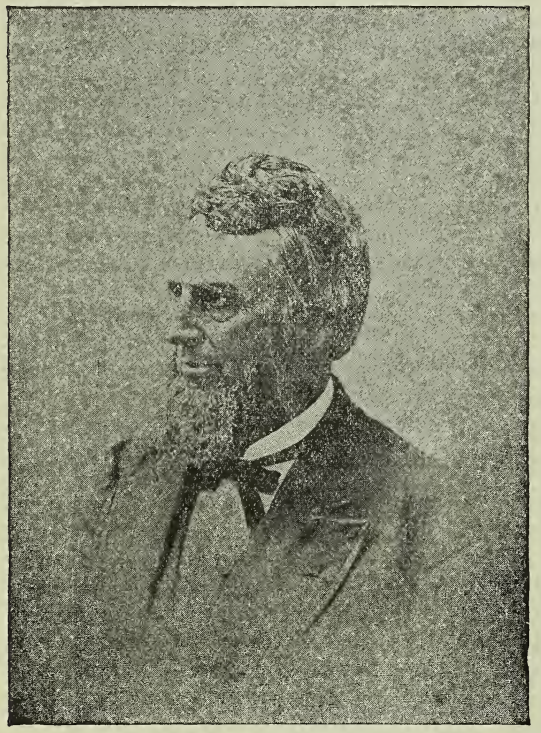
Founded upon justice, tempered by the broad principle of universal brotherhood, it seeks only its own, aiming to help and never to hinder the right-doer in any and all callings of life.

The Grange affords to the University-trained farmer a field for usefulness, both to himself and others the best cultivation of which, as a man highly trained largely at public expense, he ows as a duty to his fellow farmers and his state and nation.

F. P. STUMP.

Prof. Norton S. Townshend.

Norton Strange Townshend, Professor Emeritus of Agriculture at the Ohio State University, was born at Clay Coaton, Northamptonshire, England, December 25, 1815. His parents came to this country and settled upon a farm in Avon, Lorain county, Ohio, in the spring of 1830. Busy with farm work, he found no time to attend school, but in leisure hours made good use of his father's



small library. He early took an active part in the temperance and anti-slavery reforms. In 1836 he taught a district school, and in 1837 commenced the study of medicine with Dr. R. L. Howard of Elyria, attending a course of lectures at Cincinnati Medical College the winter of the same year. In the winter of 1839 he was a student at the College of Physicians and Surgeons of New York, spending what time he could command as voluntary assistant in the chemical laboratory of Prof. John Torrey. March, 1840, he received the degree of M. D. from the University of New York, of which the College of Physicians and Surgeons was then a department. Visiting Europe the same year, he was made a delegate from Ohio to the World's Anti-Slavery Convention, held in London, June, 1840. He was in Paris through the summer and autumn of that year, observing hospital practice and taking private lessons in surgery, etc. The next winter was passed in Edinburg, and the spring following in Dublin.

In 1841 he returned to Ohio and practiced medicine, first in Avon, and afterwards in Elyria. In 1848 he was elected to the legislature, and took an active part in securing the repeal of the "black laws" of Ohio, and in the election of Salmon P. Chase to the U. S. Senate. For several years he was engaged in political life, serving in the Ohio Constitutional Convention of 1850, in the 32nd Congress, and in the Ohio Senate 1853-5. During this time he had given up the practice of medicine. He then returned to the farm at Avon.

In 1854 he united with Profs. James H. Fairchild, and James Doscomb of Oberlin, and Dr. John S. Newberry of Cleveland, in an attempt to establish an agricultural college. For three successive winters, twice at Oberlin, and once at Cleveland, winter courses of lectures were given on the branches of science most intimately related to agriculture.

Chosen a member of the State Board of Agriculture in 1858, Dr. Townshend served in that capacity six years, and again in 1868-9. He was appointed Medical Inspector of the U. S. Army, with rank of Lieu-

tenant-Colonel, in 1863, and so served till the close of the war. In 1869 he was appointed Professor of Agriculture in the Iowa Agricultural College, where he remained one year. In 1870, a law having passed to establish an agricultural and mechanical college in Ohio, he was one of the trustees charged with the duty of carrying that law into effect. In 1873 he resigned as trustee, and was immediately appointed professor of agriculture, which position he held until 1892. During the vacation of 1884 he visited the agricultural and veterinary schools and botanic gardens of Great Briton and Ireland, attended the English national fair at Shrewsbury, that of Scotland at Edinburg, and of Ireland at Dublin. In 1874, Professor Townshend became a member of the Columbus Horticultural Society, succeeding the late Henry C. Noble as president in May 1879. In this capacity he served the Society till 1884.

Since January 1892 Doctor Townshend has held the position of Professor Emeritus of Agriculture at the Ohio State University. Dr. Townshend is specially renowned for his work in agriculture.

His tastes for agriculture were very early developed. Throughout his life, and all his private and public engagements, he was ever a farmer, delighting in the cultivation of his acres.

He was always associated, intimately and happily, with the farmers of the state — always for their advancement and welfare.

Being one of the pioneers in the cause of agricultural education, he has helped to develop it to what it is to-day. Being one of the founders of agricultural colleges, and especially our own, he will never be forgotten, but will always be enshrined among our chieftest jewels, and we will evermore be thankful for so bright an example, and will strive to follow him in his usefulness manifested to agriculture and in the love he bore to his fellow farmers.

Lessons from the University Farm.

There are many lessons that may be learned from the arrangement and management of the Uuiversity farm. Some of these will be noticed from time to time in the STUDENT.

Roads are necessary on most farms to facilitate the hauling of material to and from the barn. As the larger part of a farmer's team work is done upon his own farm, it seems that roads between sections, and sometimes fields of a farm, would be an economic advantage. Now the roads on the University farm will illustrate what a good farm road ought to be and how it ought to be kept in good repair. These roads extend from the barns, along the edge of the fields to the farthest point of the farm. They are but little wider than a wagon. They offer, in this respect, quite a contrast to the roadways on some farms that are hedged on both sides of the driveway by an abundant growth of weeds, briars and saplings. But the attention given these roadways is the main point of difference. In the first place, care is taken that the fields are cultivated right up to the road-bed. This checks the great tendency to widen, that such roadways often possess. When the roadways are in proper condition they are harrowed and worked down with a road machine, the price of which was but seven dollars. This makes a hard surface, and the process is smooth repeated as often as the condition of the roads demand. The result is a road always in good repair, over which it is a pleasure to drive.

Although the special course in dairying has been advertised only about one month, thirty-four inquiries have been received. Outside of Ohio inquiries have been received from California, Illinois, Kentucky, Michigan, Wisconsin, Washington, D. C., and Canada.

A Resolution at its Majority.

I rode all day November 25th, 1915, seeking to purchase a good farm in a community having a live farmer's organization, preferably a Grange–for the Grange is the farmer's organization. I find that owners of good farms in such communities, if they be wise men, are loth to part with them, and never do so except for a good round price. I have not yet purchased the farm.

As I have been a granger, heart and soul, since a lad of nine years – I am now 48—I was happy at sunset to find myself within the hospitable gates of farmer Ackom, a staunch patron. Better still, it was Grange night, and I was invited to accompany the family to the meeting at the hall—or *halls* as I found—some three miles distant. The night was dark but the roads were hard and smooth, being macadamized, as indeed most roads now are in Grange communities in Ohio, so the drive was easy and pleasant. On the way, in answer to my inquiry as to the condition of his Grange, my host speaks thus, musingly:

"Well, our Grange is like most Ohio Granges, a sort of triune entity. *First*; there is the Grange nursery, where embrionic Grangers speak and sing, and listen to story of animal of plant, of bug and of flower, from the kindly matron or husbandman for the time in charge. *Second*; the Juvenile Grange, where budding P's of H's hold forth in jolly and earnest study and conference, concerning some of the thousand and one intricate, interesting and important questions arising from observation in field, in garden, in orchard and in forest, and from reading book and journal at home and at school. And, *third*, the Grange proper, the farm, where matron and husbandman having the child's thirst for knowledge, not abated, but intensified by a deeper sense of their need for it, bravely study the two great problems of life: 'How to make the most of one's self,' and, 'how by the aid of the best possible self-development to do the most to help others make the most of themselves.' Realizing that underlying and tributary to these two great ends, themselves uniting in the one great end of man, the highest development of man, lie all the questions, great and small, which concern them not alone as women and men, but also as tillers of the soil.

"Here, as true matrons and husbandmen, they strive earnestly to know the truth about their soils, their crops, their animals, and every other thing pertaining to their business; not neglecting to make honest search for truth to guide them aright in the performance of their duties as citizens of county, state and nation, and as sisters and brothers in the great single sisterhood-brotherhood of earth."

Just then he drew rein at the halls, the ladies and children assisted in-doors, and the team ensconced in a warm shed provided by the Grange for all member's teams, we entered and a suffusing sense of joy in the present and of hope for the future thrilled me as I passed through the meeting of this tripartite Grange, and realized from optical and auricular demonstration that my host's description was not of the ideal only, but was of things real, approximating a very high ideal.

In the nursery, the agricultural kindergarten work was more than ideal—it was ideally practical.

The interest and enthusiasm shown by the juveniles gave us a hint, by contrast, of the criminal stupidity of the 19th century in its dealings with the legatees of its agriculture. In the third hall, how thoroughly Mrs. B. knows plants, their relation to each other and to animals and men; their laws of growth, their composition, the special adaptability of each and its products to particular uses. How well Mr. C. is acquainted with the known facts concerning corn culture; he is conversant with the sum of the results of experimentation on the question.

I saw clearly that the members had access to books, journals and agricultural bulletins, and had learned *how* to use them. On the way home my host reflectively discourses thus:

The Grange is what it is, and grangers are what they are, largely by reason of the Grange; and the great and rapid revolution of the past fifteen years owes its origin to a resolution adopted by our State Grange in 1894, demanding the introduction into our rural common schools of instruction in the elements of the sciences underlying the art of agriculture, and owes its success to the fact that the legislature enacted this demand into law, and teachers (the majority of whom I am sorry to say never prepare to teach any subject until they must), studied chemistry, physics, botany, zoology, entomology, geology, etc., and their relations to agriculture; thenceforth were able to lead and direct young minds into channels—which open up the fields of knowledge lying at their very feet. The teachers' minds broadened, they learned something of the scope and vastness of things known and knowable; they became able to direct to the sources of knowledge.

Children talking at home of the new and varied wonders continually being discovered to them, arouse their parents' interest. Parents become students, and in every school district in Ohio there was an awakening to the true inwardness of the things about us.

Where the Granges existed, or were afterwards organized—and not a few grangers owe their existence to this new force in the schools—large and well selected libraries grew, which by reason of a fundamental knowledge of sciences in the readers, could then be read with great profit.

We begun at the bottom, by training the child to observe, to investigate, to think to some purpose about the things at his hand. Nay, we dug deep for surer foundation, by demanding and securing competent teachers to train the child.

And, to-day, how far beyond calculation the beneficient results of that resolution.

The tiny seed then planted has grown and multiplied until every school house is a nur-

sery for true scientists, every Grange hall an agricultural college, and every farm home a temple wherein dwell peace, prosperity, knowledge, true wisdom, patriotism and reverence, the accompaniments and attributes of noble women and men of true matrons and husbandmen.

FOREST P. STUBBLE.

Dairy Tests.

There seems to have been a misunderstanding of our comments upon the tests made by the Ohio State Fair. A writer in one of our dairy papers took exceptions to some of the statements. We were pleased to notice the pains he took to comment upon the article; but were surprised at some of his questions. He first questioned the correctness of the analyses on the assumption that the results were too low. The mistake was not in the analyses but in the reading of the article. The solids not fat, and the butter-fat as well, of the milk was given in pounds, not in per cent, although the article was at fault in not clearly stating so. A little figuring will show that these cows gave a good average per cent of butter fat for the breeds referred to. Exception was also taken to the statement of the evident fact that the fat in these tests does not vary in the same way as the solids not fat.

The most important criticism is: "How it is that he gets at it, that he can tell by the total solids how much cheese he will get, and when it was that milk-sugar and albumen was first incorporated in cheese?" We are very sorry that we led any one to believe that milk-sugar and albumen are being incorporated into cheese. What we wished to point out is, that in this case if we estimated the amount of cheese these different cows could make we would get different results by using the butter-fat alone as our basis than if we used both the butter fat and the solids not fat. Believing that the two would make a better basis to start from in this particular instance.

Here are my results:

	Butter Fal. lb.	Solids not Fat. lb.	Butter Fat and Casein lb.	Butter Fat and Casein lb.	Butter Fat and Casein lb.
Urery Mush ...	2.06	4.34	3.43	3.69	3.83
Paterina	1.66	3.83	2.76	3.40	3.42
Hilton Maid ...	1.59	5.05	2.65	3.37	3.39

The first column gives the pounds of butter-fat each cow gave, and the second column the pounds of solids not fat. The third column the casein and butter fat in pounds, as obtained by butter-fat method. To get the casein two-thirds of the butter fat is taken. The butter-fat being first found by chemical analysis. This rule is based upon results obtained by the New York Experiment Station. (See part five, bulletin 60). To get the cheese-making qualities of the milk, add this portion of casein to the butter-fat. The result is that obtained by the butter-fat method.

To get the cheese-making qualities of milk when both the butter-fat and the total solids are given, per cent of casein in the solids is estimated. For this estimate I have used the results of both the New York station and the New Jersey station. After getting the amount of casein it is added to the amount of butter-fat to get the cheese-making qualities of the given sample of milk.

In other words, in the third column of the above set of figures we have the cheese-making qualities of each cow's milk as obtained by the butter-fat method. In the fourth and fifth columns the results of using the solids and fat as our basis. I think the writer can now see how it is we get at it to tell the amount of cheese a cow can make when she has the solids not fat and the fat she gives. And also think he can see that there is a wide difference between the results of the two methods.

However, we do not wish anyone to think that we are opponents to the butter-fat method of estimating the value of milk for making cheese. On the other hand, we would be understood as supporting that system as being simple, fair, accurate and reliable.

Notes from Our Garden.

Preparations for winter are now being made. All crops which would be injured by frost are either being marketed or stored away. The forcing houses have been gone over and glass reset where needed, making them tight and warm. The hot beds are all occupied. In one of the hot-beds the radishes (referred to in last number) are now ready for use, and some have been disposed of. The price of radishes at present is about fifty cents per dozen bunches, each bunch containing five to seven radishes.

Lettuce is being sold from the greenhouse. It is in good condition and sells pretty well. The beds are reset in lettuce as soon as possible after removing the first crop.

The mushrooms have begun to appear; of course, a very few come up this early. The general rule is that mushrooms are ready to be gathered in from eight to twelve weeks from time of spawning the beds.

The middle bench of one of the forcing houses is set in crysanthemums. They are doing well and the bed is a mass of bloom. Most of them are white. The plants were not pruned and so the blossoms are not so large as they would otherwise be.

In the open air there are other things going on. The root crops are being buried, except the parsneps, which are allowed to remain in the ground all winter and dug as used during the spring.

Progress in Horticulture.

Young men, if you desire a college education in horticulture, now is an acceptable time to come and enlist with us. A citizen at present has much to do if he would attain honor and distinction in any particular subject. Scores of energetic and highly educated horticulturists are publishing their achievements in the magazines and papers of the day. Many more are writing volumes which they revise from year to year, in order to put forth more enlightened ideas. When we see this we know that progress is being made. We know too, that we, the young men of our country, must acquaint ourselves with what is being done so that when matters are left in our charge, we can take up the work and carry it forward without delay, and if possible, with increased energy and enthusiasm.

To be thoroughly successful in scientific research, the horticulturist must have a wide education, including a variety of subjects related to his favorite. He finds a knowledge of Entomology and Botany useful. He cannot afford to neglect Chemistry and Vegetable Pathology. He must be familiar with fungicides and insecticides, and know how to apply them; and a thorough acquaintance with Geology and Ornithology are desirable.

If he does not learn these in college he must acquire them by reading and by practical experience.

The man who gets his ideas while young has the active part of his life to put them into practice. This is one instance at least where the college boy has an advantage.

The Columbus Horticultural Society.

The regular November meeting of this society was held in Westerville, and proved to be unusually interesting.

Dr. N. S. Townshend read an instructive paper in which he clearly demonstrated that a more careful selection of varieties, better cultivation, and more liberal fertilizing, would make fruit growing a success even in Central Ohio.

"The Growing of Plums," was the title of a paper presented by Mr. J. S. Hine. He briefly described the method of cultivation employed by the most successful plum growers in Northern Ohio, and emphasized the importance of thorough culture.

Professor Lazenby presented a paper on "Shrubs and Flowers for Country Homes." Among other things he said that every country door yard ought to be a landscape garden. In other words, it should be a picture with one central thought and idea. We are slowly learning that it is not trees, shrubs and flowers, that makes a picture, but the proper arrangement of trees, shrubs and flowers.

The annual meeting of the society for the election of officers will be held in Horticultural Hall, O. S. U. the last Saturday in December.

Dont's for the Poultry Raiser.

Don't keep mongrels or fowls that have been crossed with any kind of chicken you happen to have on the place.

Don't fail to observe the motto: Better stock and more produce for time, money and feed.

Don't neglect having a good warm house for your hens in winter. They will pay for it and good interest besides.

Don't miss a chance to buy pure bred stock in place of common stock, when the former can be had at a reasonable price.

Don't keep hens after they have become unprofitable, which is usually from one to two years, owing to the variety.

Don't expect your hens to lay in winter with no shelter except a cart or the coal shed.

Don't let diseased fowls remain with the flock. If they become ill remove them at once, and prevent the spread of the disease.

Don't have lice on your hens when a little coal-oil sprinkled on the perches once a week will keep them away.

Don't neglect feeding hens iron in some form. Spanish brown is one source, as it contains about ninety-four per cent of oxide of iron.

Don't feed whole grain and nothing else, it makes the hen too fat without filling all her requirements to produce eggs.

Don't fail to feed a nitrogenous food in abundance, especially to the pens of fat hens.

Don't expect your hens to lay eggs without lime in some form to make a shell. Raw ground bone is a good all-round substance.

Don't abuse a sitting hen simply because she shows her instinct strongly, but shut her in a pen where her surroundings will be different and in which there is room for sitting.

Don't let your poultry manure go to waste for it is a very good fertilizer.

Don't allow your hens to be scared; it does them harm, and they will prove it to you by not filling your egg basket.

Don't run your poultry business in a careless manner, but keep an accurate account of feed, labor, etc., so that you may know whether your hens are profitable or whether you are producing eggs at a loss.

Wintering Swine.

The season of the year is at hand when the farmer wishes and expects to prepare for winter. The wintering of pigs does not receive as much attention by many farmers who raise them as would be profitable. The owner thinks that by putting a little straw in a fence corner that he has performed the necessary preparation. I have seen many herds sleeping, or trying to sleep in such a bed. The owner thinks he has done as much as Nature does for the wild hog. He is mistaken. Nature makes dense forests to protect him. The wild hog has a better bed than does many domestic ones.

Man has modified the purpose of of the hog and he should, therefore, modify his surroundings. The purpose of the wild hog was to re-produce his kind. The domesticated hog must in addition, help to fill the pocket-book of the owner, that he may educate his children, and he must furnish a great people with pork. The hog like any other animal will give return in proportion to the way it is fed and kept. This obvious truth is recognized

by many with regard to other animals, while the mortgage lifter is allowed to shift for itself.

The kind of house or shed to make does not matter much, so it has the three requirements, of warmth, dryness and good ventilation. There are many ways to build such houses. Good farmers, often make double rail pens, packed with straw between the two rails, leaving an opening on the south or south-east side. This makes a good, cheap shed, if one has the rails. Such a structure can be easily moved, and can be cleaned by taking off a part of the roof. There should be a platform on the outside to feed on, as they should not be fed inside.

Other kinds of permanent sheds can be made without much expense. I prefer a shed made with feeding room inside for bad weather. Too many pigs should not be put in one appartment, as where there is a large number they are likely to pile on each other and injure some, and often kill the smallest. There should not be more than twenty in each division, better less than more. The large and small pigs should have seperate pens. The pens should be cleaned often and not allowed to get dusty, as dust is harmful to pigs, injuring their lungs.

There are several good books on building swine houses. I think it would be a good plan for those interested to have some good book. Sander's Barn Building is a good one, that I would recommend, on all kinds of farm out buildings.

Professor Milton Whitney, Chief of the Division of Soils, United States Department of Agriculture, Washington, D. C., has been secured to deliver two illustrated lectures on the physical properties of soils before the students of the School of Agriculture. Professor Whitney is an original investigator and has already done much to clear away the mysticism with regard to soil, and to place our knowledge of the functions of soils and their tillage on a rational basis. The lecture will be given in February.

Samples of soil have been received by the Department of Agriculture from Mr. Alva Agee, Cheshire, Mr. Oscar Erf, Mr. T. B. Terry, Hudson,O., and from Ohio Agriculture Experimental Station, Wooster, Ohio.

Messrs. Burkett and Riggs are preparing a thesis on the physical properties of soils, and will use the above samples with others in the progress of their work.

Hon. N. B. Morrison, a trustee of the U. of I., a MEMBER OF THE FARM COMMITTEE and a MEMBER OF THE BOARD OF CONTROL OF THE EXPERIMENT STATION of that Institution, visited O. S. U. last week. One of the specific objects of his visit, as he himself puts it was to "learn how to educate some of our boys back on the farm instead of having them all run off up to Chicago or some other large city. There are one hundred-thousand people in Chicago now with nothing to do. You (the O. S. U. Department of Agriculture) I understand are getting the boys back onto the farm."

Mr. D. A. Crowner, the dairy editor of this Journal, who is preparing a thesis on the effect of the stage of maturity of corn fodder when cut, upon the production of milk and butter, has the feeding test under way. Twelve cows are divided into three lots, and each lot will be fed the corn fodder which comes from two-fifths of an acre. In this way it is expected to determine the amount of milk and butter produced from equal areas of corn cut at different stages of ripening.

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